

Pccr 1417 Scanner Interface Guide



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Scanner Interface Software

General

The Scanner Interface Software is a module that enables the FSE to access to the PcCR 1417 advanced setup.

Following is a list of screens, and their functionality:

1. Main Screen

This screen is used as the interface between the end user and the scanner.

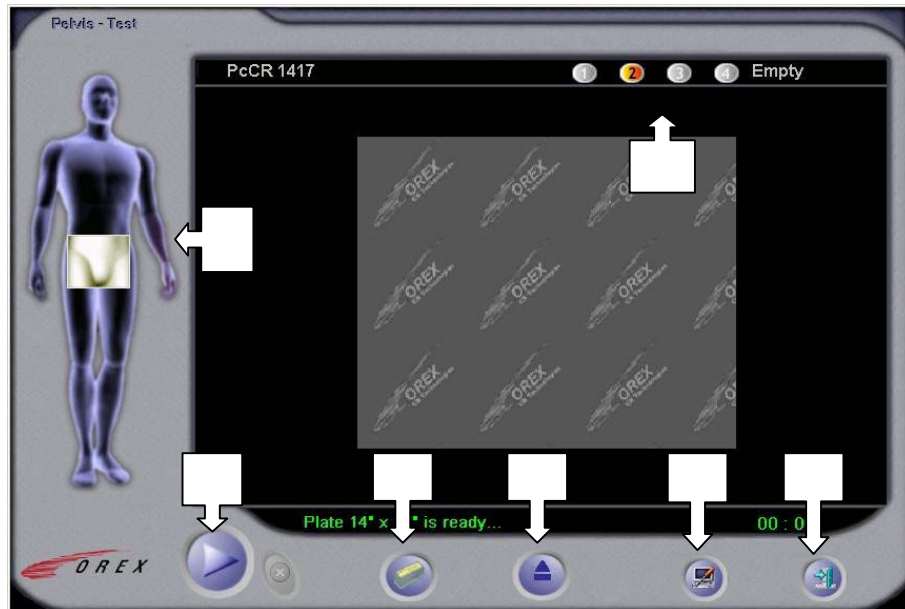



Figure 1: Scanner Interface, Main Screen

Title	Description
1. Unit	For selecting the x-ray unit being used
2. Region	For selecting the anatomical region to which the image you plan to scan belongs.
3. Scan	For starting to scan. During the scan a pre-view of the scanned image is displayed. At the end of the scanning process, the interface window closes
4. Erase	For erasing the image on the phosphor plate.
5. Eject	For unloading the plate; then ejecting the cassette.

Title	Description
6. Setup	<p>For entering the Setup interface. The login screen is displayed:</p>  <ul style="list-style-type: none"> • User password – None • Technician password – 9591 • Orex Technician password – Contact Orex Service Dept.
7. Exit	For exiting the PcCR 1417 interface.

2. Setup Anatomical

Note: Each setup relates to a specific part, to be scanned from a plate that originated from a specific x-ray machine.



Figure 2: Setup Menu, Anatomical tab

Title	Parameter	Description
Unit Set		<p>The PcCR 1417 can support up to 4 different x-ray units. Each unit has its own set of parameters.</p> <p>Select/name the unit on which you want to work. You can change the unit name at any time</p>

Title	Parameter	Description
Organ List	Organ List	<p>Select the required organ from the drop-down list. The following organs are available:</p> <ul style="list-style-type: none"> • Skull • Upper Extremities • Chest • Abdomen • Spine • Lower Extremities • Abdomen
	Sub Organ List	<p>Select the required sub-organ from the available list; this has to describe the image you want to scan.</p> <p>This is an initial list; you can add, and delete organs to any of the sub-organ lists (see the two buttons below).</p>
Set new sub-organ name	Add new Sub-Organ	<p>To add a new sub-organ:</p> <ul style="list-style-type: none"> • Select the Organ. • Type the new Sub-organ. • Click Add.
	Delete Sub-Organ	<p>To delete a sub-organ:</p> <ul style="list-style-type: none"> • Select Organ. • Select Sub-organ. • Click Delete.
Calibration Settings	Pm Gain	<p>For performing Automatic Calibration. Refer to the Calibration chapter in the User Manual.</p>

3. PM Gain Calibration



The PM Gain calibration finds the PM gains with radiation dose allowed on the phosphor plate from the local x-ray machine, depending on the density of the scanned organ.

1. Erase the phosphor plate twice (to eliminate any remainder of information on the film).
2. Place the Phantom (4 mm Aluminum plate) on the right bottom corner of the plate.
3. Expose the plate to x-ray. Use 70 KV, 2.5 mAs and SID 130 cm.
4. Insert the cassette containing the phosphor plate into the scanner.
5. From the Calibration tab, select the Find Pm Gain checkbox.

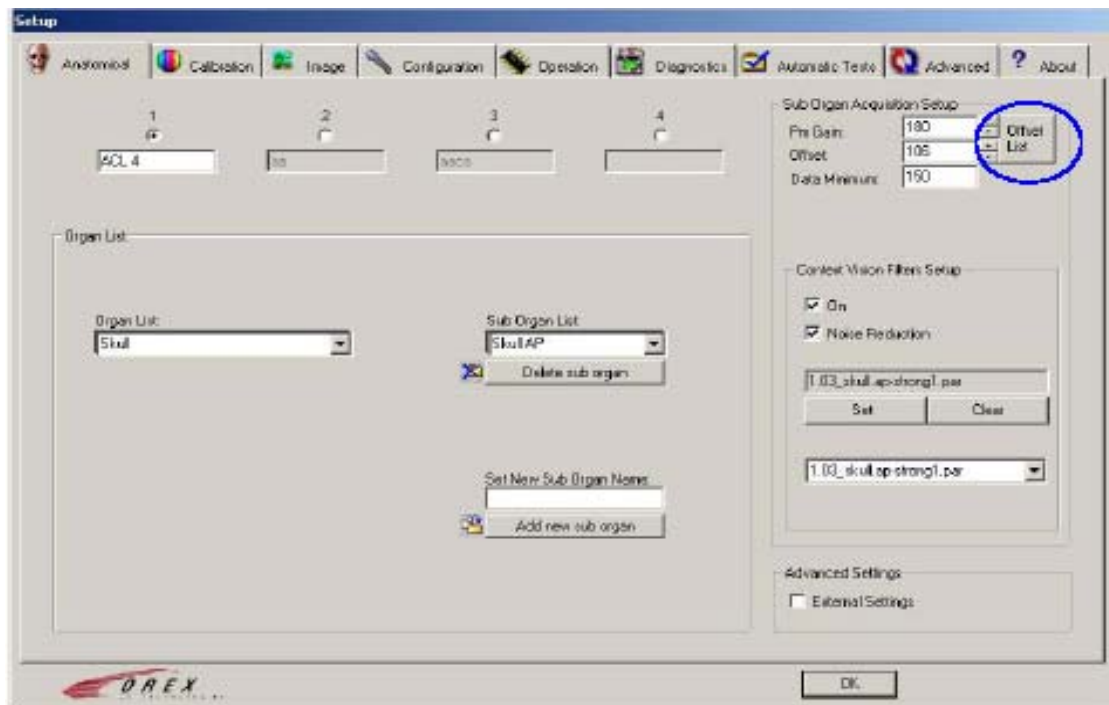
6. Click Start, to start the Calibration process. The system calculates the PM Gain. When the scanning finishes a table with the gain values for all organs is displayed.

7. If desired, you can define the Pm Gain value manually. Enter the new value; then click the Manual Pm Gain Calibration button. After a short time, the PM gain in all sub-organs allocated to the selected organ, is recalculated according to the new value, and the table is displayed again.

8. Close the Setup screen. The Scanner Interface's main dialog re-opens.

The first step of calibration creates the PM Gain and offset LUT. You can now proceed to modify the table.

Click the Offset List button on the Anatomical tab of the scanner interface's Setup dialog.



Note:

Do not forget to re-check the Linearization option on the **Image** tab of the **Setup** dialog.

10. Exit the Scanner Interface. The viewer program's main window re-opens.

You have completed calibrating the scanner PM gain and Offset.

4. Setup Image



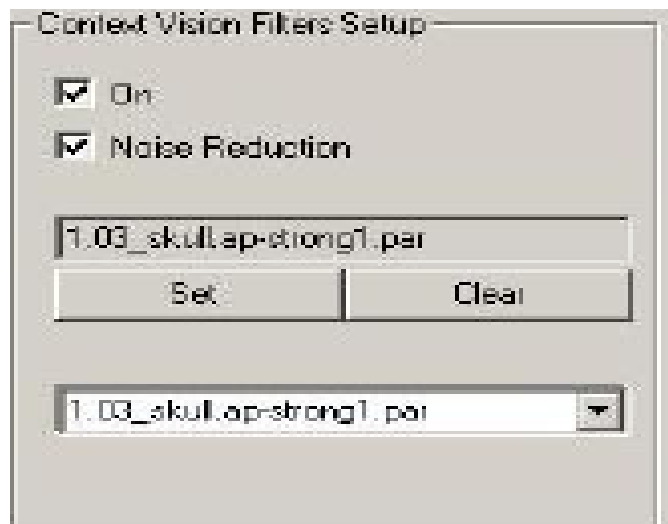
Figure 3: Setup Menu, Image tab

Title	Parameter	Description
Data Correction Method	Data Correction Method	For changing the data correction method. The recommended method is Linearization.
	Browse	For loading a pre-defined set of values; located by browsing.
Demo Scan		For using an available image file for scanning, if no plate (cassette) is available.
Rotate canvas	Horizontal flip	For flipping the image.

Title	Parameter	Description
	Vertical flip	
Small Plate Resolution	<p>Always Ask</p> <p>Normal Resolution</p>	<p>Before scanning a small plate, you will be prompted to choose the required resolution (Normal/High).</p> <p>All small plates will be scanned at normal resolution.</p> <p>Unchecked – Normal resolution always Checked – High resolution always</p>
Save		For saving the parameters. This HAS to be done before selecting another tab.

Filtering Notes:

- If you uncheck the **On** checkbox under **Context Vision Filters Setup** (technician password required), the Scanner Interface processes the image using the setup values that were defined locally (and that are specific to every sub-organ in each unit).



- If you check the **On** checkbox under **Context Vision Filters Setup** (technician password required), the Scanner Interface processes all the acquired images, by using the Context Vision parameters. A specific filter has been optimized for each sub-organ in each unit, and this default filter appears in the Context Vision Filters Setup section whenever that sub-organ is selected.
- If the default filter does not turn out to be suitable for the sub-organ, you can either check the **Noise Reduction** checkbox, or select a different filter from the pull-down list (which is common to all the sub-organs creating

an organ) and click the **Set** button. If you choose not to use a Context Vision filter for that specific sub-organ, click the **Clear** button.

- Checking the **External Settings** checkbox (technician password required) allows an external program to select the organ, sub-organ and resolution.

3. Each unit can be given a name on the **Anatomical** tab. After you name a unit, that name appears on the main dialog whenever that unit is activated.

Adding and Deleting Sub-organs

If you want to add a new sub-organ, select the relevant organ, insert the new sub-organ, and click the **Add new sub-organ** button.

If you want to delete a sub-organ, select it and click the **Delete sub-organ** button.

Note:

When you add/delete sub-organs, changes are automatically saved in all units.

5. Setup Configuration

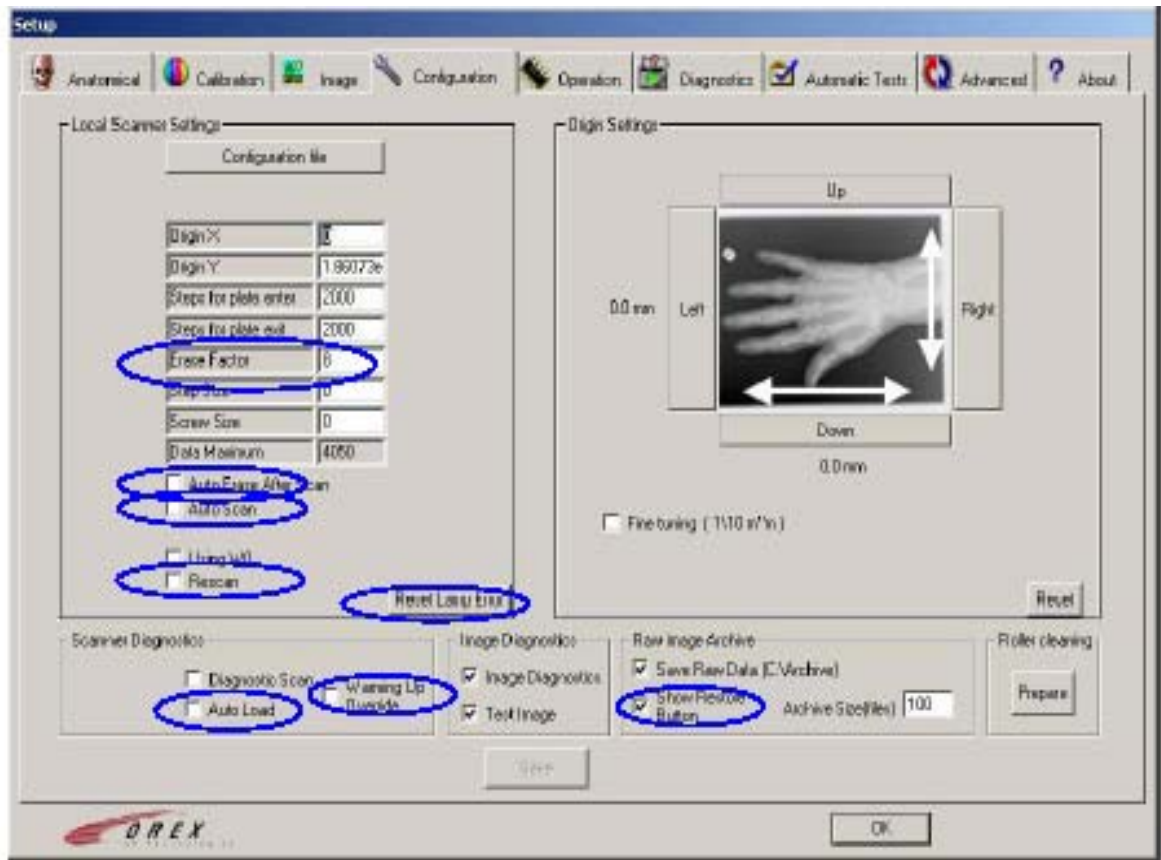


Figure 4: Setup Menu, Configuration tab

Erasing Options and Automatic Scan

Overview

The scanner Configuration library consists of several options that are used daily:

- **Auto erase after scan** enables the erasing of a plate automatically after the scan is completed.
- **Erase factor** enables you to choose the number of erasing steps, which is proportional to erasing time. The available range is 8-127.
- **Auto scan** enables the initiation of a scanning procedure as soon as the cassette enters the scanner.
- **Auto Load** initiates plate loading as soon as the cassette is inserted; then reloads it after it is scanned and unloaded.
- **Rescan** enables an additional scan on the same plate.

- **Warming Up Override** enables you to start scanning operation immediately, without waiting for the Erase Lamps to warm up.

Warning !

Scanning, while this option is enabled may result with an unclear image.

Note:

Remember to click **Reset Lamp Error** after you repair an erase lamp problem. Failure to do so will result in illogical Lamp error messages.

- **Show Restore Button** displays the Restore Button at the bottom of the main screen, enabling you to display raw images in case the one you received cannot be used

Restoring Corrupted Images

If the image you get is corrupt because of misused image processing tools, you can restore the image in its raw state, and process it manually, with the tools available in the Image Diagnostics menu.

RestorButton



Restore Button

After choosing the desired image from the Archive directory, click Open. The Image Diagnostics screen is displayed.

Setting Erasing Options and Auto Scan

1. In the main dialog, click the **Setup** button. The **Setup** dialog opens. In the **Setup** dialog, select the **Configuration** tab.
2. Check the **Auto erase after scan** checkbox, then click **Save**.
3. Perform a scan. After scanning is completed, erasing occurs automatically.
4. Check the **Auto Scan** checkbox, then click **Save**. Scanning will occur automatically as soon as film enters the scanner.
5. For optimal erasing, enter the following **Erase factors**, and **Save**:

For ACL2:

- Agfa/Fuji 8 x 10 film: **25**
- Agfa/Fuji 14 x 17 film: **25**

For ACL4:

- Agfa/Fuji 8 x 10 film: **60**
- Agfa/Fuji 14 x 17 film: **60**

Technician Mode

The technician mode is activated automatically, when one of the following modes is enabled:

- Diagnostic
- ACL4 Test
- Test Image
- Calibration
- Auto Load
- Warming Up Override

In this mode, a message (**Technician Mode**) is displayed at the bottom right side of the screen, to remind the user, that at least one of the system's units is overridden, and a proper image may not be acquired.

6. Setup Operation Update

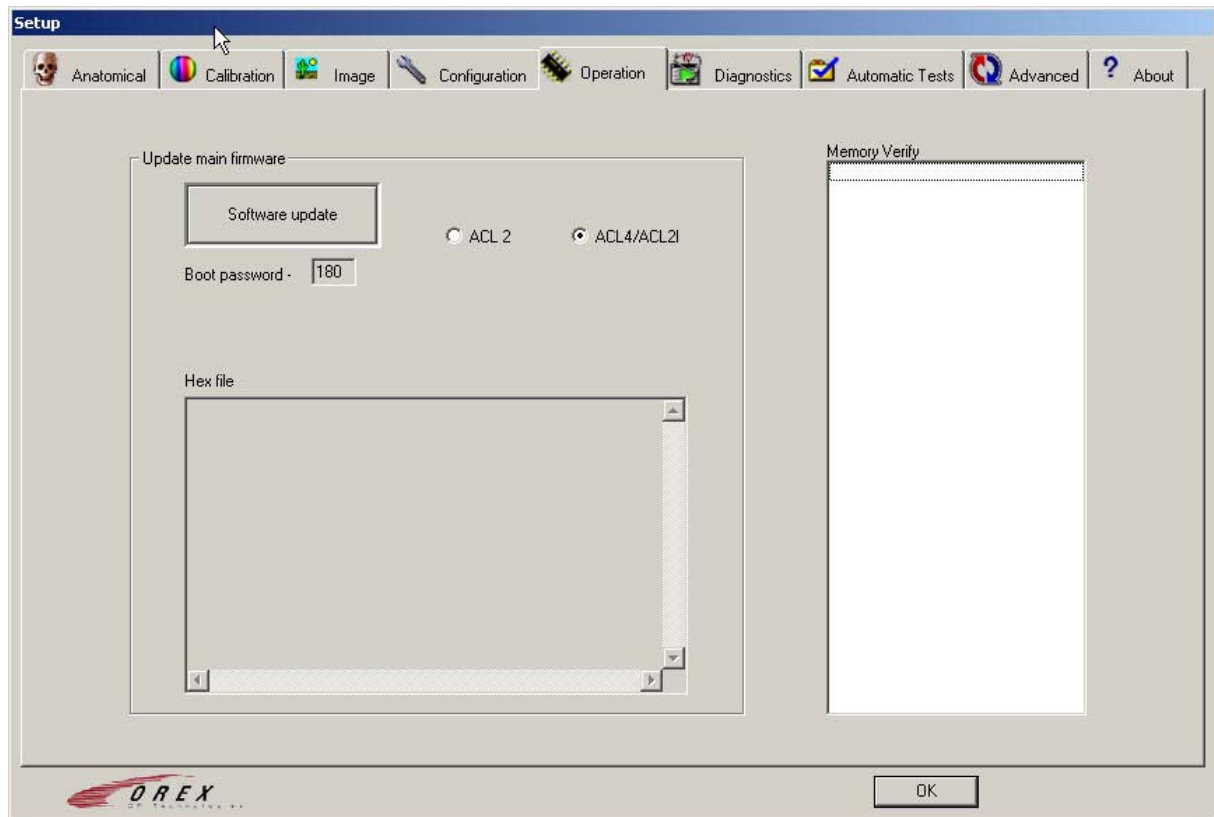


Figure 5: Setup Menu, Operation Update tab

Title	Parameter	Description
Update Main Firmware	Software Update	Select the type of scanner, and then click the Software update button to update the software to the scanner.
	Boot Password	Displays the Boot password.
	Hex file	Displays the Hex file.
	Software Backup & Restore	Backs up and restores the software in your version.
Memory Verify		Displays feedback for memory verification.

7. Setup Diagnostics

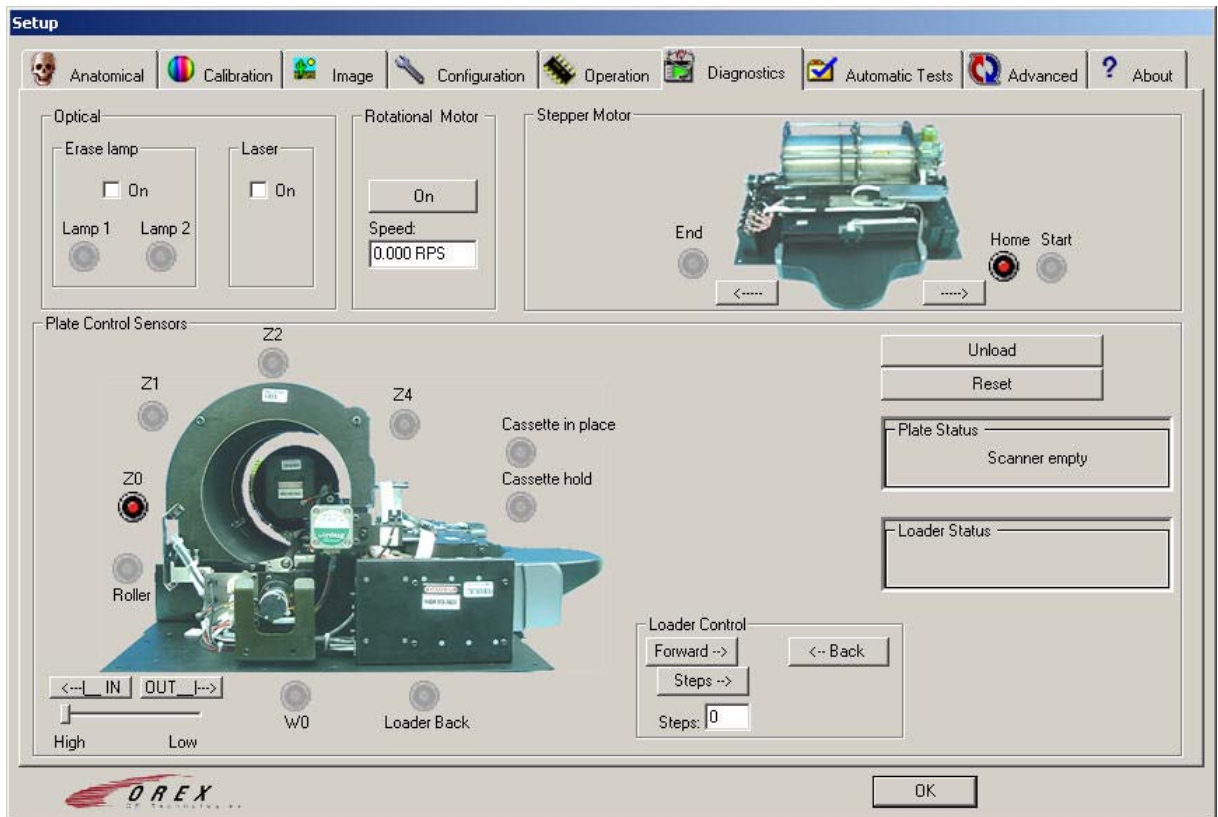


Figure 6: Setup Menu, Diagnostics tab

Title	Parameter	Description
Optical	Erase Lamp	Turn on/off the Erase lamp
	Lamp1	Indicates that lamp1 is on.
	Lamp2	Indicates that lamp2 is on.
	Laser	Turns on/off the Laser unit
Rotational Motor	On	Turns on the Rotational motor
	Speed	Indicates the speed of the rotational motor.

Title	Parameter	Description
Stepper Motor	<div> <div> <div>←</div> <div>→</div> </div> <div>End Start</div> </div>	Each click moves the carrier in the selected direction. When the carrier approaches its travel limit, it sets off a limit switch (red indication).
Plate Control Sensors	<div>Sensors</div> <div> <div>←</div> <div>→</div> <div>In Out</div> </div> <div>High/Low slide-bar</div> <div>Unload</div> <div>Reset</div> <div>Plate Status</div> <div>Loader Status</div>	<div>Cassette in place – Cassette is docked</div> <div>Cassette hold – Cassette is locked</div> <div>Loader – Loader has reached plate</div> <div>W0 – Plate is approaching rollers; has to slow down</div> <div>Roller – Feeding rollers</div> <div>Z0-Z4 – Positioning sensors</div> <div>Moves the plate In or Out of the scanner.</div> <div>Controls the movement speed of the plate in the scanner.</div> <div>Unloads the cassette</div> <div>Resets all the sensors and motors in the Diagnostic menu.</div> <div>Displays the status of the plate</div> <div>Displays the status of the plate loader</div>
Loader Control	<div>Forward</div> <div>Back</div>	<div>Moves the Loader forward</div>

Title	Parameter	Description
	Custom – Steps	Moves the Loader into the cassette. Each click moves it the number of steps typed into Steps .

8. Setup Automatic Tests

This menu is used primarily, at the end of the Orex production line, for burn-in tests.

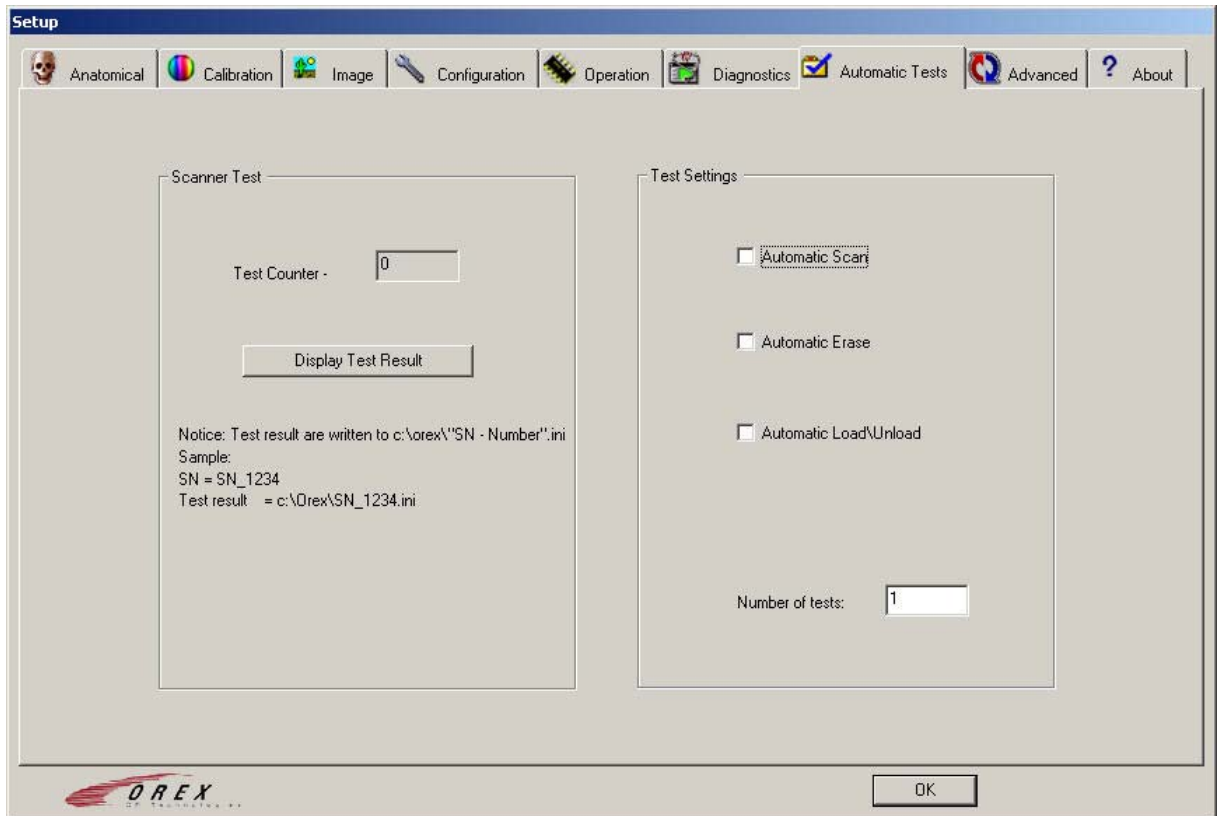


Figure 7: Setup Menu, Automatic Tests tab

Title	Parameter	Description
Scanner Test	Test Counter	Displays the number of tests that have been run.
	Display Test Result	Displays the test results.
Test Settings	Automatic Scan	Performs a scan automatically, when the cassette is inserted into its port. This test is usually run with the Automatic Load/Unload test

Title	Parameter	Description
	Automatic Erase	Performs an automatic erase.
	Automatic Load/Unload	Automatically Loads and unloads the plate. This test is usually run with the Automatic Scan test.
	Number of tests	Sets the number of tests to run.

9. Setup Advance

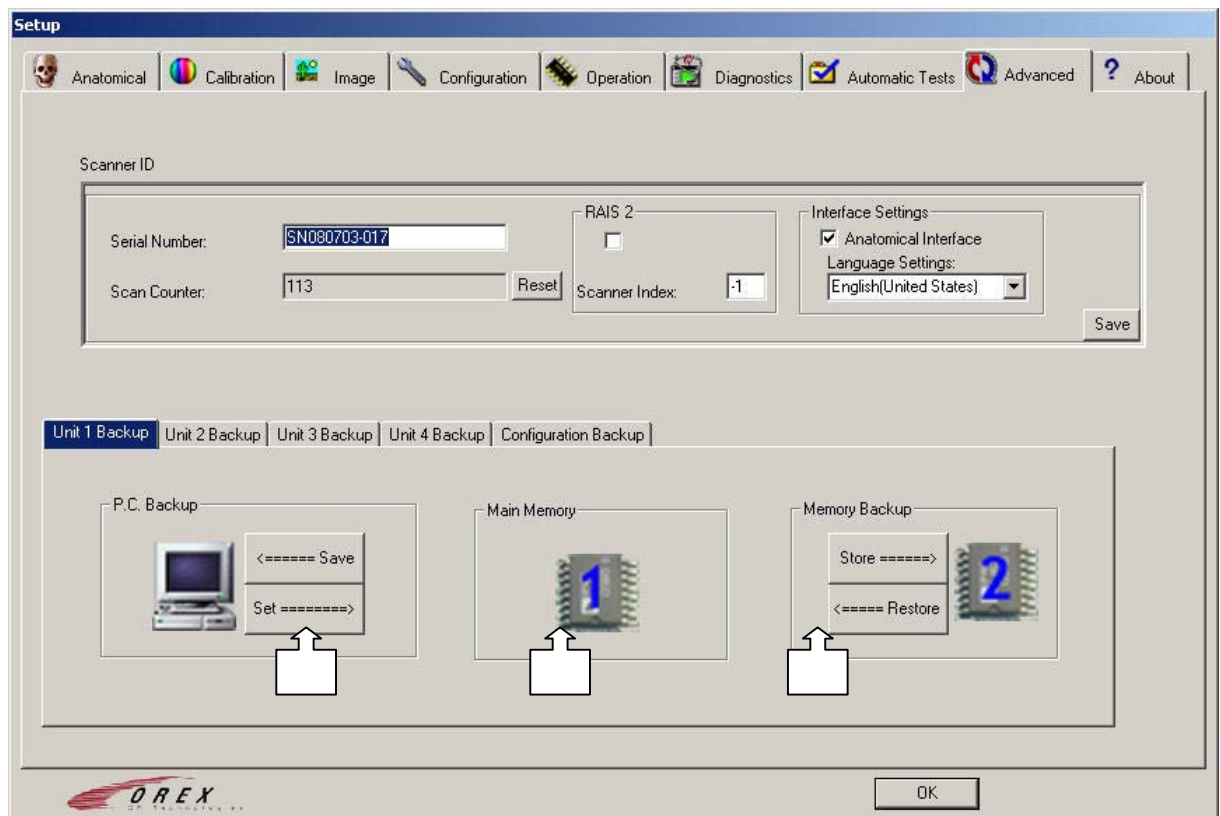


Figure 8: Setup Menu, Advance tab

Title	Parameter	Description
Scanner ID		From here you can edit the serial number, and the DV number.
	Serial Number	Displays the serial number of the system.
	Scan Counter	Counts the number of scans.
	Reset	Resets the number of scans to “0”.
RAIS 2		Dual Scanner mode
	Scanner index	
Interface Settings		

Title	Parameter	Description
	Anatomical Interface	<p>Check for the body image on the main screen.</p> <p>Uncheck for test-labeled buttons. The labels can be renamed by using the Orex Editor.</p>
	Language	Choose the required Scanner Interface language.
Save		For saving the parameters. This HAS to be done before selecting another tab.
Unit 1-4 Backup		From here you can select the desired unit for performing backup, or restoring
Configuration Backup	A. PC Backup	Backup of data on the PC files
	B. Main memory	Currently used data on serial EPROM
	C. Memory backup	Backup of data on serial EPROM
	The buttons perform the following functions	
	Save	<p>Copy B ➔ A</p> <p>Copy A ➔ B</p> <p>Copy B ➔ C</p> <p>Copy C ➔ B</p>
		Orex recommends that these function shall be performed only by Orex technicians.

10. Setup About

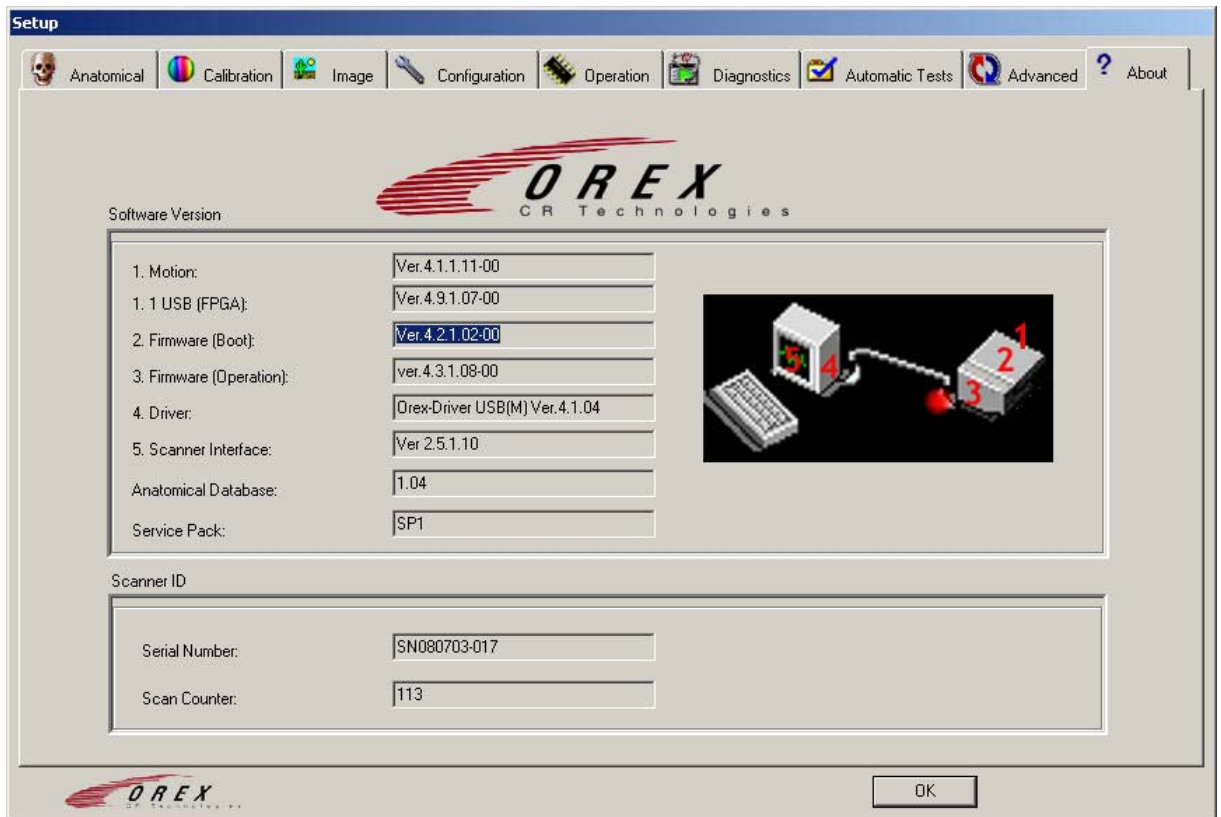


Figure 9: Setup Menu, About tab

Title	Parameter	Description
Software Version	1. Motion	Currently used version of the Motion board
	1.1 USB (FPGA)	Currently used version of the USB (FPGA).
	2. Firmware (boot)	Currently used version of the Firmware (boot)
	3. Firmware (Motion)	Currently used version of the Firmware (Motion)
	4. Driver	Currently used version of the Driver

Title	Parameter	Description
	5. Scanner Interface	Currently used version of the Scanner Interface
	Anatomical database	Currently used version of the Anatomical database
Scanner ID	Serial number Scan counter	

11. Image Diagnostics

After scanning the desired image, it is displayed on the mini viewer. This is used for final calibration of the filters assigned to the displayed part (sub-organ).

As opposed to the Setup screens, the results can be seen immediately.

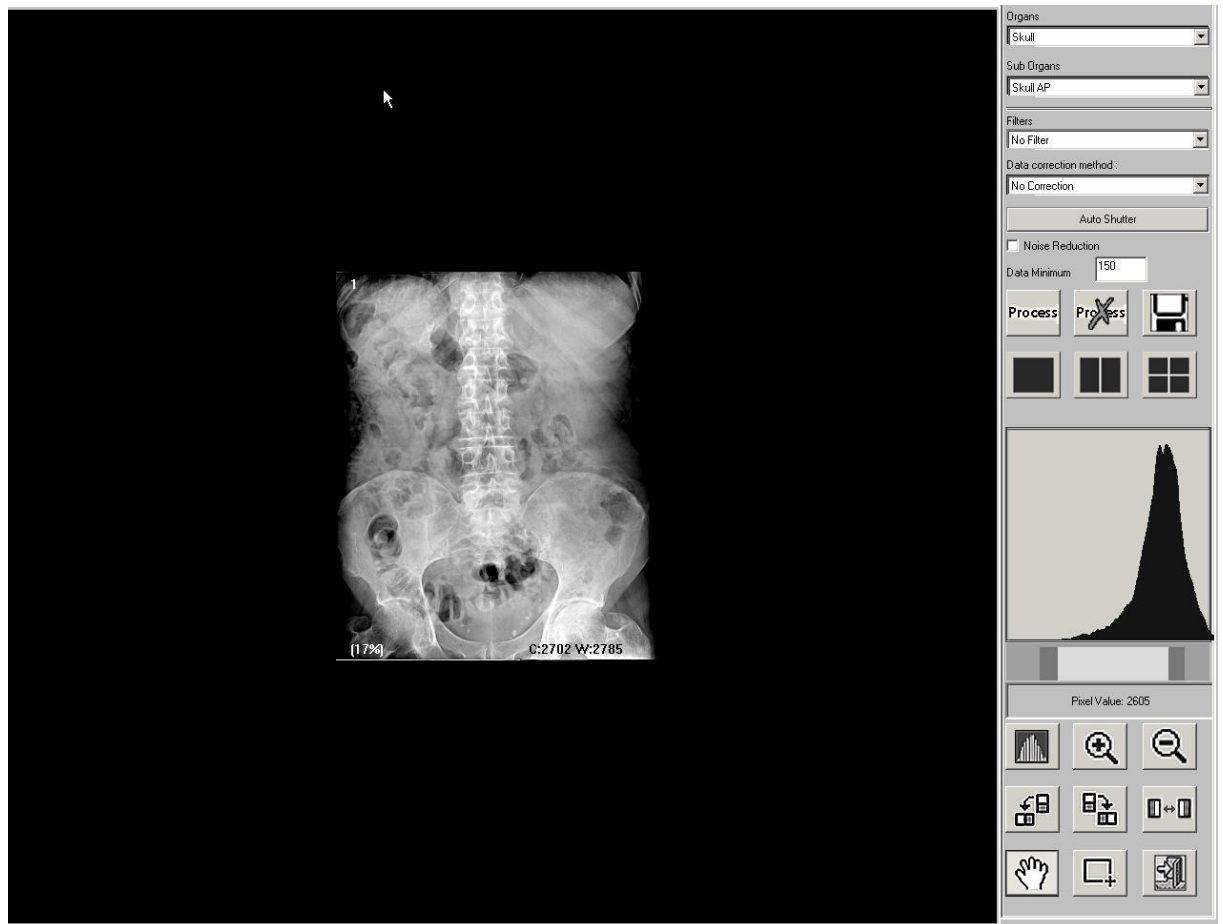


Figure 10: Image Diagnostic screen (Mini Viewer)

Title	Parameter	Description
Organ	Organ	For selecting the main classification (organ)
	Sub Organ	For selecting the actual (viewed) sub-organ

Title	Parameter	Description
Image Adjustments		
	Filters	For selecting the filter.
	Data Correction method	For changing the data correction method. The recommended method is Linearization.
	Data minimum	For changing the Data Minimum.
	Brightness slider	
	Contrast slider	
Process		For viewing the result of the new setup
Reset		For resetting the image
Histogram		To view the histogram of the displayed image
Save		To save the settings.
Exit		To exit the mini-viewer.

1. Select the correct **Sub-organ** from the relevant **Organ**.
2. Select the desired **Filter**; then click **Process** to view the filtered image.
3. You can now right-click and drag to change contrast and intensity; or click and drag to change zoom. The cursor changes accordingly.
Alternatively, you can use the sliders at the bottom right of the screen.
4. If the result is not good enough, you can click **Reset** to reset the image; then repeat the procedure with another filter, until you get the best image.
5. When the desired image quality is attained, click **Save**. Whenever this part is selected for scanning under this unit, the image will be filtered at this saved quality.

It is possible to view the histogram of the image.

Additionally, it is possible, for each sub-organ, to set a Data Minimum value.